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SOUTHERN FOREST EXPERIMENT STATION

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LONGLEAF PINE STUMPWOOD SUPPLY IN FOUR SOUTHEASTERN SURVEY UNITS

By

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* - This is an advance release of Forest Survey data that will be included in complete reports to be published later. This information is subject to correction or amplification as computations proceed.

LONGLEAF PINE STUMPWOOD SUPPLY

IN FOUR SOUTHEASTERN SURVEY UNITS

This release presents advance information on the amount of longleaf pine stumpwood in four Forest Survey Units. The wood referred to is that in the seasoned stumps resulting from the cutting of the longleaf pine of the original forest. These stumps, together with other highly rosin-impregnated wood in the tops and limbs of fallen old-growth longleaf pine, are used in the manufacture of wood turpentine, wood rosin, rosin oils, charcoal and other products.

The units lie in the Coastal Plain region of South Carolina,Georgia and northeast Florida, as shown in Figure 1. Along the Atlantic and Gulf Coasts, the country is characterized by sandy, poorly drained flatwoods that extend from twenty miles inland on the Gulf Coast of Florida to over one hundred miles in southeast Georgia. Behind the coastal strip, the country is higher, gently rolling, and better drained. The flatwoods make up 40 percent of the total area,rolling uplands,30 percent; swamps, bays and river bottoms, 30 percent.

The area is well served by railroads and an extensive system of hard surfaced highways, graded county roads, and unimproved woods roads. Port facilities are available at Charleston, Savannah, Brunswick, Jacksonville, and Fernandina. Opportunity for barge transportation exists on the larger rivers and the Intercoastal waterway, which passes along the Atlantic Coast.

A steam-solvent wood naval stores plant is at Brunswick, Georgia, and two small destructive-distillation plants are at Allenhurst and Collins, Georgia. Two destructive-distillation plants are at Jacksonville and Gainesville, Florida. The nearest active wood naval stores plants outside of the region are at Pensacola,Florida and Bay Minette, Alabama, both using the steam-solvent process.

The information presented in this release is based on data gathered during 1933 and 1934 by the Southern Forest Survey, an activity of the Southern Forest Experiment Station of the U. S. Forest Service. Trained cruisers measured and recorded forest and land-use conditions on nearly 38,000 quarter-acre sample plots systematically located at intervals of 660 feet on parallel compass lines, 10 miles apart, run entirely across the area from east to west. The preliminary estimates presented here are subject to revision later in the final Survey reports.

In the presentation of these survey data,it is to be noted that owing to the sampling method used in collecting them, usually the greater the area or volume in any given classification the more accurate the data for that classification. Classes that are of infrequent occurrence and are relatively small in quantity cannot generally be determined with as high a degree of accuracy as is obtainable for classes that occur more frequently and in substantially greater quantities.

LAND AREA

The four survey units covered in this release include a land area of approximately 30 million acres, of which over 20 million acres are in some stage of forest growth. In Table 1, the total acreage, the forest acreage, and the non-forest acreage are given for each survey unit.

TABLE 1. — Land area of each survey unit classified according to forest and non-forest area

Units	Total area	Forest area	Non-forest area	Proportion of forest
	Acres			Percent
South Carolina #1	5,186,900	2,993,000	2,193,900	57.7
Georgia #1 1/	9,711,200	7,056,200	2,655,000	72.7
Georgia #2	5,585,900	3,020,400	2,565,500	54.1
Florida #1 2/	9,515,600	7,378,900	2,136,700	77.5
Total	29,999,600	20,448,500	9,551,100	68.2

1/ Does not include Okefenokee Swamp and Coastal Islands.
2/ Does not include Ocala National Forest.

STUMPWOOD ESTIMATE

In the following tables the amount of merchantable stumpwood in each of the four survey units is given and classified according to the topographic situation in which the stumps occur. The data are further arranged according to the number of stumps per acre. To be merchantable, stumps must be sound, well-seasoned heartwood of longleaf pine in such condition and so located that they can be either pulled by machines or removed with explosives. The amounts given are based upon removal of the stumps by blasting; if the stumps are pulled rather than blasted, the amount of wood recovered per stump is increased by 60 percent. Stump-pulling operations, because of the use of heavy machinery, are at present confined largely to the flatwoods and, even there, only to well blocked-out areas of considerable extent that are accessible to railroad transportation.

In addition to the merchantable stumpwood there is a considerable amount that should be considered as a potential supply. This is found, (1) in sound and seasoned stumps that are so located that large-scale pulling or blasting operations, under current practices, do not seem practicable, (2) in recently-cut stumps from old-growth pine that are not yet sufficiently seasoned, and (3) stumps that will result from the felling of old-growth longleaf pine trees now standing. The estimate of potential stumps, also on a blasting basis, is carried as a footnote under each table.

The greatest amount of stumps is to be found in the Florida unit, and the least in the South Carolina unit. The tonnage per acre also averages highest in the former unit, and lowest in the latter. In Florida Unit No. 1 and Georgia Unit No. 1, the greater part of the stumps are in the flatwoods; in Georgia Unit No. 2, the greater part is in the uplands, and in the South Carolina unit, the supply is about evenly divided between the flatwoods and uplands.

FIGURE 1.

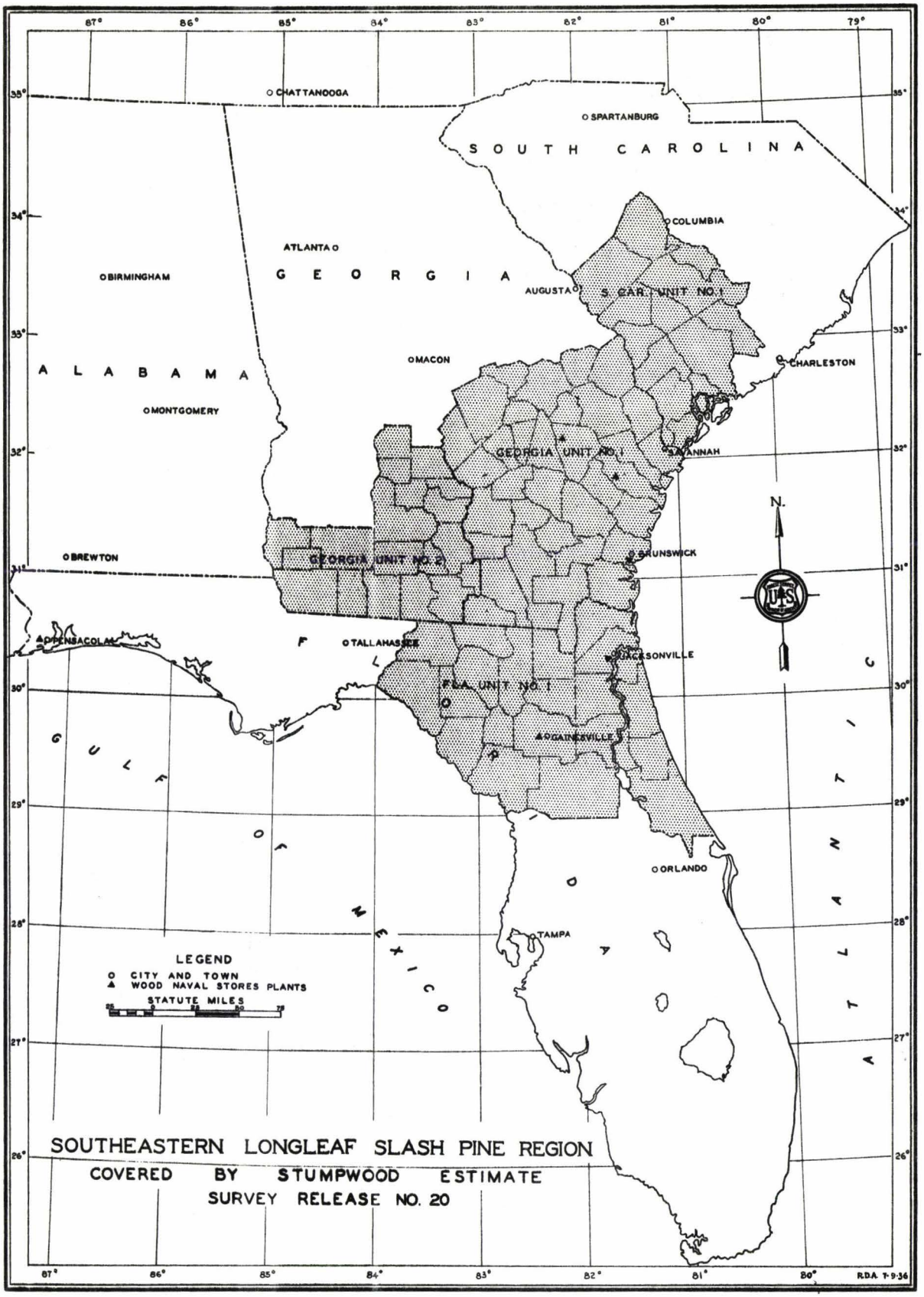
CHATTANOOGA
SPARTANBURG
SOUTH CAROLINA
COLUMBIA
ATLANTA
BIRMINGHAM
GEORGIA
AUGUSTA
S. CAR. UNIT NO. 1
MACON
CHARLESTON
ALABAMA
MONTGOMERY
GEORGIA UNIT NO. 1
SAVANNAH
N.
BREWTON
GEORGIA UNIT NO. 2
BRUNSWICK
PENSACOLA
TALLAHASSEE
JACKSONVILLE
FLA. UNIT NO. 1
GAINESVILLE
GULF OF MEXICO
ATLANTIC OCEAN
ORLANDO
TAMPA
LEGEND
CITY AND TOWN
WOOD NAVAL STORES PLANTS
STATUTE MILES
SOUTHEASTERN LONGLEAF SLASH PINE REGION
COVERED BY STUMPWOOD ESTIMATE
SURVEY RELEASE NO. 20
R.D.A. 7-9-36

TABLE 2. -- Amount of merchantable stumpwood, Florida Unit No. 1

Stumps per acre	Topographic situation			Total	Percent of total
	Flatwoods	Rolling uplands	Swamps, bays, ponds, etc.		
	Thousand tons				
5 or less	124	78	5	207	1.7
6 - 13	983	629	16	1,628	13.1
14 - 25	2,456	1,031	36	3,523	28.3
26 or over	5,901	1,117	72	7,090	56.9
Total	9,464	2,855	129	12,448	
Percent of total	76.0	23.0	1.0		100.0

Note: Also 3,216,000 tons of potential stumps (blasting basis).

TABLE 3. -- Amount of merchantable stumpwood, Georgia Unit No. 1

Stumps per acre	Topographic situation			Total	Percent of total
	Flatwoods	Rolling uplands	Swamps, bays, ponds, etc.		
	Thousand tons				
5 or less	65	75	7	147	2.7
6 - 13	491	445	23	959	17.5
14 - 25	1,243	669	34	1,946	35.4
26 or over	1,826	552	61	2,439	44.4
Total	3,625	1,741	125	5,491	
Percent of total	66.0	31.7	2.3		100.0

Note: Also 5,645,000 tons of potential stumps (blasting basis).

TABLE 4. -- Amount of merchantable stumpwood, Georgia Unit No. 2

Stumps per acre	Topographic situation			Total	Percent of total
	Flatwoods	Rolling uplands	Swamps, bays, ponds, etc.		
	Thousand tons				
5 or less	22	74	2	98	3.9
6 - 13	112	310	10	432	17.0
14 - 25	195	489	55	739	29.2
26 or over	425	817	24	1,266	49.9
Total	754	1,690	91	2,535	
Percent of total	29.7	66.7	3.6		100.0

Note: Also 2,629,000 tons of potential stumps (blasting basis).

TABLE 5. -- Amount of merchantable stumpwood, South Carolina Unit No. 1

Stumps per acre	Topographic situation			Total	Percent of total
	Flatwoods	Rolling uplands	Swamps, bays, ponds, etc.		
	Thousand tons				
5 or less	5	12	2	19	3.9
6 - 13	56	61	4	121	24.5
14 - 25	86	92	7	185	37.5
26 or over	96	66	6	168	34.1
Total	243	231	19	493	
Percent of total	49.3	46.9	3.8		100.0

Note: Also 979,000 tons of potential stumps (blasting basis).

The stumpland area classified as "merchantable" constitutes 41 percent of the forest area of Florida Unit No. 1;26 percent in Georgia Unit No. 2; 23 percent in Georgia Unit No. 1; and 6 percent in South Carolina Unit No. 1. The greater part of these merchantable areas lie in lightly stocked stands of second-growth pine timber and in clear-cut and in re-stocking areas.

With a present supply of nearly 21 million tons of merchantable stumps, a potential supply of over 9 million tons, and a present annual requirement by existing stump-using plants of only 300-to 350 thousand tons, it is obvious that there are enough stumps to allow a considerable expansion in the production of wood naval stores in this region.

Regardless of the sufficiency of the supply of stumpwood, any considerable expansion of the wood naval stores industry must await a marked increase in the demand for turpentine and rosin. From the standpoint of timber supply in the naval stores belt as a whole, the outlook for gum naval stores production indicates no likelihood of prolonged reduction of output. Unless there is a marked increase in naval stores consumption, both domestic and foreign, a full utilization of available and potential supplies of both turpentine timber and stumpwood would undoubtedly bring about a condition of chronic over-production, and would demoralize both the gum and wood naval stores industries.

NOTE: The volume of stumpwood in old growth trees still standing, referred to in the second paragraph under "Stumpwood estimate" on page two has not been calculated and is not included in the statement of potential tonnage given as footnotes under each table.